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Gender as a moderator between Present-Hedonistic time perspective and depressive symptoms or stress during COVID-19 lock-down

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ABSTRACT

Although numerous studies have addressed the impact of the COVID-19 lock-downs on psychological distress, scarce data is available relating to the role of Present-Hedonistic (PH) time perspective and gender differences in the development of depressive symptoms and stress during the period of strict social distancing. We hypothesized that gender would moderate the relationship between PH and depressiveness or stress levels, such that PH would negatively correlate with psychological distress in women but correlate positively in men. The present study was online and questionnaire-based. $N = 230$ participants aged 15–73 from the general population took part in the study. The results of moderation analysis allowed for full acceptance of the hypothesis for depression as a factor, but for stress the hypothesis was only partially confirmed, since the relationship between PH time perspective and stress was not significant for men (although it was positive, as expected). The findings are pioneering in terms of including PH time perspective in predicting psychological distress during the COVID-19 lock-down and have potentially significant implications for practicing clinicians, who could include the development of more adaptive time perspectives and balance them in their therapeutic work with people experiencing lock-down-related distress.

1. Introduction

In January 2020, the World Health Organization announced that COVID-19 constituted a global pandemic (Mahase, 2020). The virus then proliferated worldwide and government actions to mitigate spread have significantly affected various areas of life, such as healthcare, transportation, freedom of movement and daily activity (Simpson & Katsanis, 2020; Zajenkowski, Jonason, Leniarska, & Kozakiewicz, 2020). In Poland, public health safety measures were initiated in January 2020, followed by declaration of a state of epidemic emergency and imposition of lock-down measures on March 14th and the declaration of a state of epidemic from March 20th (Pinkas et al., 2020).

1.1. Lock-down, stress and depressive symptoms

Lock-down and social isolation, although quite effective in slowing down the pace of the epidemic, have been shown to impact emotional and mental health (de Quervain et al., 2020; Li et al., 2020; Shigemura & Kurosawa, 2020). According to these reports, one of the most significant adverse consequences of the changes in everyday life due to

epidemic is an elevation of stress and depressive symptoms in the population. For instance, initial results of the Swiss Corona Stress Study (de Quervain et al., 2020) suggested that there was a 50% increase in stress levels during the lock-down compared to the period preceding it. Changes in stress levels were strongly associated with changes in depressive symptoms as 57% of participants reported an increase in depressive symptoms, which is not unexpected considering the strong link between stressful life events and depression (Hammen, 2005). Interestingly, approximately 25% of the participants reported lower stress levels during lock-down than before. The authors of the report suggest that, in this group, the decrease might have been due to a reduction of stressors or having more time for recovery from stress during lock-down than under non-lock-down circumstances. Accordingly, the level of experienced stress during lock-down and the impact it may have on mental health may be an individual matter. One promising avenue for investigation is found in gender differences and their potential associations with perceived stress and depressive symptoms during lock-down.

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1.2. Gender, stress and depressive symptoms

It is worth noting that a greater number of depression diagnoses are observed in women than men (Essau, Lewinsohn, Seeley, & Sasagawa, 2010; Van de Velde, Huijts, Bracke, & Bambra, 2013). Women have higher incidence rates of clinical diagnosis of dysthymia, recurrent brief depression and minor depression (for a review see Angst et al., 2002), as well as major depressive disorder and its chronic course (Essau et al., 2010). Women were also found to report twice as many depressive symptoms as men (Girgus & Yang, 2015), were more likely to admit being under stress and were more likely to develop depressive symptoms after a stressful event (Sherrill et al., 1997). Ruminative tendencies, chronic strain and low mastery were also found to be more common in women and mediate the gender difference in depressive symptoms (Nolen-Hoeksema, Larson, & Grayson, 1999). This gender difference might also stem from hormonal fluctuations (for a review of psychosocial factors in depression across genders see Leach, Christensen, Mackinnon, Windsor, & Butterworth, 2008).

Additionally, social roles, among other determinants, have been acknowledged as potential risk factors for developing depression in both genders (Piccinelli & Wilkinson, 2000). Gender schemas (Martin & Halverson Jr, 1981) may be connected to how women and men attribute the causes of their depression onset. For instance, physical illnesses or problems were the most important precipitants of depression for both genders but especially for men (Angst et al., 2002). For women, problems in relationships and illness or death in the family were identified as other significant causes, whereas, for men, additional causes included problems at work and unemployment. Furthermore, the question of whether elevated levels of depressive symptoms in women might be a consequence of gender inequality has been a topic of wide discussion (Salk et al., 2017). Such an idea is supported by the association of female social roles with lower role overload and lack of choice (Szpitalak & Prochwicz, 2013; Van de Velde et al., 2013) and the well-established linkage between feelings of powerlessness, lack of control in one's own life and depression (Mirowsky & Ross, 2003).

Despite a climate of social change in gender roles (Eagly, Nater, Miller, Kaufmann, & Sczesny, 2020), a number of cross-cultural similarities in the gender division of labor has been observed in advanced industrial societies (Pérez & Tavits, 2019). Women were found to typically invest more time in raising children, preparing food and caring for home. In contrast, men were found to typically invest more time in extra-domestic tasks. The context of lock-down creates the situation of needing to remain at home, the constant presence of all family members at the home, an increased importance of female gender schema-related activities, and either a shifting of extra-domestic activities to the home space or reduction of these activities. Therefore, typically, women during lock-down might be encouraged to play more gender schema-congruent roles in the course of everyday lock-down life, in contrast to men. The remote work lifestyle, as well as fear of job loss due to the economic crisis resulting from the epidemic, might be especially gender schema-threatening for men and contribute to depressive symptoms. Additionally, a lock-down situation shifts attentions to everyday activities and the uncertainty of the present moment (Versluis, van Asselt, & Kim, 2019). As no one could predict the duration of lock-down and the COVID-19 epidemic, time perspective (at an individual consideration) may be a particularly noteworthy factor in explaining adaptations to the adverse situation.

1.3. Present-Hedonistic time perspective during lock-down

Time perspective is generally defined as an “often unconscious process whereby the continual flows of personal and social experiences are assigned to temporal categories or time frames that help to give order, coherence and meaning to those events” (Zimbardo & Boyd, 1999, p. 1271). A habitual bias to process time in a certain manner might become a relatively stable individual difference, formed through

learning processes and cultural influences (Jochemczyk, Pietrzak, Buczkowski, Stolarski, & Markiewicz, 2017). Zimbardo and Boyd (1999, 2008) in their seminal works distinguished five time perspectives: Past-Negative, Past-Positive, Present-Hedonistic (PH), Present-Fatalistic and Future. A tendency to focus on particular time perspectives, especially Past-Negative and Present-Fatalistic might be predictive of a higher level of depressive symptoms, whereas Past-Positive (Anagnostopoulos & Griva, 2012; Zimbardo & Boyd, 1999) appeared to protect individuals from elevated levels of depressive symptoms. In general, people rating high on Past-Positive and PH time perspectives also exhibit increased well-being and life satisfaction (Stolarski, Bitner, & Zimbardo, 2011; Zhang & Howell, 2011). Additionally, they are happier, in contrast with those scoring higher in the Past-Negative time perspective, who experienced less happiness (Drake, Duncan, Sutherland, Abernethy, & Henry, 2008). However, compared to other time perspectives, PH time perspective was the most robust predictor of current emotional states (Stolarski, Matthews, Postek, Zimbardo, & Bitner, 2014). Hedonism, from which the name for the PH time perspective is taken, is defined as openness to pleasurable experience (Veenhoven, 2003), and is associated with lower levels of depressive symptoms (Disabato, Kashdan, Short, & Jarden, 2017), as well as with mania in bipolar disorder (Gruber, Cunningham, Kirkland, & Hay, 2012). Therefore, the PH time perspective is especially interesting for investigating depressive and stress symptoms during COVID-19 lock-down.

1.4. Current study

The main aim of the current study is to contribute to the knowledge about potential gender differences in the linkages between PH time perspective and depressive symptoms or perceived stress during COVID-19 lock-down. Personal characteristics, including time perspectives, are related to how people experience social events. PHs are habitually oriented to pleasures of the present and excitement with little consideration of future consequences (Zimbardo & Boyd, 1999). Strong social situations “providing salient cues to guide behavior and having a high degree of structure and definition” (Snyder & Ickes, 1985; p. 904) can be more important in predicting certain behaviors or experiences than personality traits (Sherman, Nave, & Funder, 2012). An epidemic, considered to be a strong social situation, can increase psychological distress, especially depressiveness and stress level. It is possible that, due to strict social distancing, the impossibility of realizing most needs outside of home and, hence, the blockage of pleasant stimuli could predict depressiveness and stress experience. Moreover, lock-down compels the discounting of immediate rewards for the sake of the one's own health and that of others, which might be difficult for PH-oriented people in general (Jochemczyk et al., 2017; Stolarski et al., 2011). Therefore, one might suppose that people who tend to fulfill their hedonistic needs outside of their homes might experience greater lock-down distress than people who tend to take pleasure from home- and family-oriented activities.

Considering the gender schema theories, it is possible that the lock-down situation could prove more depressing for men. According to such theories, men might be inclined toward valuing hedonistic extra-domestic activities (compared to typical domestic activities), which were significantly limited due to the lock-down. Moreover, although in general women tend to present higher levels of depression, the factors leading to this discrepancy are distinct for women and men. For instance, men more frequently attributed the onset of their depression to current life events, such as unemployment or problems at work, than females did (Angst et al., 2002). The lock-down was not only linked to shifting work life to homes but sometimes caused employment uncertainty and financial insecurity. Based on the above-mentioned theoretical assumptions, our hypothesis is that gender would moderate the relationship between PH and depressiveness or stress levels, such that PH would be negatively related with psychological distress in women

but positively correlated with psychological distress in men.

2. Method

2.1. Participants and procedure

We recruited 230 participants (141 women, 89 men) online. Power analysis conducted in G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007) indicated that this sample size would allow for the detection of a small effect of partial R^2 increase of 0.05 ($\alpha = 0.05$) with a power of 0.81. The participants were not reimbursed. All participants were between the ages of 15 and 73 years ($M = 30.37$, $SD = 10.21$). Only 4 participants had not graduated high school, 31 participants (27.4%) declared secondary education, 63 participants (27.4%) were students and 130 individuals reported higher education (56.5%). The majority of participants lived in cities with either less than 100,000 inhabitants ($N = 45$, 19.6%) or more than 100,000 ($N = 124$, 53.9%) while the other participants lived in the countryside ($N = 61$, 26.5%). Participants were married, ($N = 71$, 30.9%), in a partnership ($N = 53$, 23%), single ($N = 97$, 42.2%), divorced ($N = 8$) or widowed ($N = 1$). Participants mostly lived with other people ($N = 204$, 88.7%), including with family (children, spouse, parents and other family members), with romantic partners or with friends. 24 individuals (10%) declared that they were currently in psychotherapy.

Participants were recruited through social media, primarily Facebook, through paid advertisement, a post about the study on the lab profile and on private profiles using the snowball method. The study conformed to the Declaration of Helsinki (World Medical Association, 2001), and all participants provided informed consent to take part in the study. The respondents were informed that the purpose of the study is to examine “how people deal with the current situation, how they feel, what they think”, that the survey is fully anonymous and that they could discontinue at any time. The average time for survey completion was approximately 15 min.

2.2. Measures

Depressive symptoms. A 9-item Patient Health Questionnaire (PHQ-9) was used to assess severity of depressive symptoms. Its items correspond to criteria for diagnosis of DSM-IV and DSM-V depression symptoms (Kroenke & Spitzer, 2002; Mitchell, Frayne, Wyatt, Goller, & McCord, 2019) and enabled grading of depressive symptom severity. It contains questions about psychological well-being within the last two weeks (e.g., *How often have you been bothered by little interest or pleasure in doing things?*), including a question related to hurting oneself (i.e., *How often have you been bothered by thoughts that you would be better off dead or of hurting yourself in some way?*). In the current study, the PHQ-9 provided a severity measure with scores ranging from 0 to 27—each of the nine items can be scored from 0 (“not at all”) to 3 (“nearly every day”). Depression severity was defined by the scale’s authors as: 1–4 none, 5–9 mild, 10–14 moderate, 15–19 moderately severe and 20–27 severe. The PHQ-9 was found to be a reliable measure in our study ($\alpha = 0.86$).

Perceived stress. The Perceived Stress Scale (PSS) was applied to measure levels of stress (Cohen et al., 1983) and it measures the degree to which situations in one’s life are considered stressful. The scale consists of 10 items (four positively stated, e.g., *In the last month, how often have you felt that things were going your way?* and six negatively stated, e.g., *In the last month, how often have you been upset because of something that happened unexpectedly?*) that can be scored from 0 (“never”) to 4 (“very often”). The PSS scores are obtained by reversing the responses to the positively stated items and then summing across all the scale items. The Cronbach’s alpha coefficient in the present research was $\alpha = 0.91$.

Time perspectives. The Zimbardo Time Perspective Inventory (ZTPI)

was used to measure the PH time perspective (Zimbardo & Boyd, 1999). The tool consists of 56 items, forming five scales: Past-Negative scale (10 items, e.g., *I often think of what I should have done differently in my life*), Past-Positive (9 items e.g., *Familiar childhood sights, sounds, and smells often bring back a flood of wonderful memories*), Present-Fatalistic (9 items e.g., *Fate determines much in my life*), Present-Hedonistic (15 items, e.g., *I believe that getting together with one’s friends to party is one of life’s important pleasures*) and Future (13 items e.g., *When I want to achieve something, I set goals and consider specific means for reaching those goals*). The participants were asked to score on a five-point Likert scale the degree to which each statement referred to him/her (1 = very untrue, 5 = very true), and some items were reverse coded. The level of a specific time perspective was obtained by summing the items results for each scale. In the current study, the Cronbach alpha for ZTPI PH subscale was $\alpha = 0.77$. Reliability of ZTPI subscales which were not of the interest of the current study is presented in Appendix Table A.1.

2.3. Analytic strategy

All analyses were conducted using IBM SPSS 25.0.0.2 for Windows. Our main hypotheses were tested employing regression analysis with bootstrapping methods using Andrew F. Hayes PROCESS 3.2.01 macro (Hayes, 2018).

3. Results

Frequency analysis of the results from the PHQ-9 indicated that 40 (17.4%) participants had no depressive symptoms, whereas the rest of the sample displayed mild ($N = 85$, 37.0%); moderate ($N = 53$, 23.0%); moderately severe ($N = 37$, 16.1%) or severe ($N = 15$, 6.5%) depressive symptoms.

Next, we investigated descriptive statistics, performed correlation analysis and tested for gender differences in time perspectives, stress and depression scores. The results of these analyses for the variables of interest of the current study are presented in Table 1. Correlations and descriptive statistics for all study variables including ZTPI subscales other than PH are presented in the Appendix Table A.2.

It should also be noted that depression scores were not significantly associated with PH. Stress was negatively, although weakly, correlated with PH.

Women and men did not differ in PH. Results also indicated that women declared higher perceived stress and more intensive depression symptoms. Mean depression scores for women fell into the interval for

Table 1

Pearson’s correlations between variables, means, standard deviations in the sample and within genders and results of *t*-test of gender differences in variables.

	Age	PH	Stress	Depressive symptoms
Age	–			
PH	–0.02	–		
Stress	–0.05	–0.15*	–	
Depressive symptoms	–0.13*	–0.07	0.77**	–
<i>M</i> general	30.37	49.28	27.57	9.99
<i>SD</i> general	10.21	8.02	8.28	5.85
<i>M</i> women	31.20	48.68	30.17	11.31
<i>SD</i> women	10.51	8.49	7.95	5.94
<i>M</i> men	29.08	50.24	23.44	7.89
<i>SD</i> men	9.64	7.13	7.07	5.07
<i>t</i> (228)***	1.54	–1.44	6.52	4.48
<i>P</i>	0.13	0.15	< 0.001	< 0.001
Hedges’ <i>g</i>	0.21	0.20	0.88	0.61

Note. Hedges’ *g* was used as it addresses sample size imbalances.

* $p < 0.05$.

** $p < 0.001$.

*** = Degree of freedom was 228 except for Age, where it was 227 due to missing data in one case.

Table 2

Models predicting stress and depression based on Present Hedonistic perspective and Gender. Coefficients with 95% CI (in parenthesis below Coefficient) are presented for each model.

	Depression model				Stress model			
	B [95% CI]	SE	T	p	B [95% CI]	SE	t	p
PH	-0.41 [-0.68; -0.14]	0.13	-2.99	0.003	-0.52 [44.36; -0.15]	0.18	-2.82	0.005
Sex	-17.78 [-27.64; -7.92]	5.00	-3.55	< 0.001	-22.17 [-35.53; -8.80]	6.78	-3.26	0.001
PHxSex	0.28 [0.09; 0.48]	0.09	2.91	0.004	0.31 [0.04; 0.57]	0.13	2.33	0.021
R ²	0.12				0.18			
F(3,226)	9.91				17.58			
p	< 0.001				< 0.001			

moderate level of depressive symptoms, while the mean for men fell within the mild depressive symptoms level.

Next, we tested our main hypothesis using regression models with a bootstrapping method for depressive symptoms and stress as dependent variables in two separate models. PH was included as the predictor and gender was included as a moderator in both models. Coefficients with 95% CI for both models are presented in Table 2.

Data from Table 2 suggests that both models predicted a significant amount of variance in the dependent variables. The results also showed that PH was negatively related with depression and with stress. Women were coded 1 and men were coded 2; thus, a negative relationship indicated that women were higher on stress and depression scores. In both models, the interactions were also significant. The interpretation of PH and gender interaction with simple slopes showed that the relationship between PH perspective and depression scores was also significant and negative for women, whereas for men it was significant and positive. The relationship between PH and stress was significant and negative in women, while this relationship was not significant in men.

The results allow us to accept the hypothesis in the case of depression but, in the case of stress, the hypothesis was only partially confirmed, since the relationship between PH and stress was not significant for men (although it was positive, as expected). The relationship between PH and depression scores in men and women is presented in Fig. 1 and relationship between PH and stress in men and women is presented in Fig. 2.

4. Discussion

The aim of the study was to explore gender differences in the relationships between PH and depressive symptoms or perceived stress during the specific context of lock-down due to the COVID-19 epidemic.

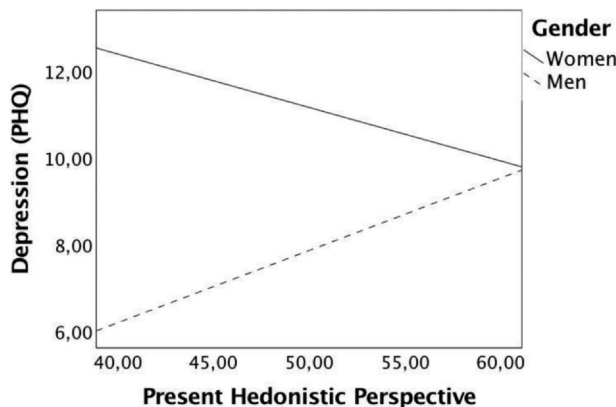


Fig. 1. Relationship between Present Hedonistic perspective and depression in men and women.

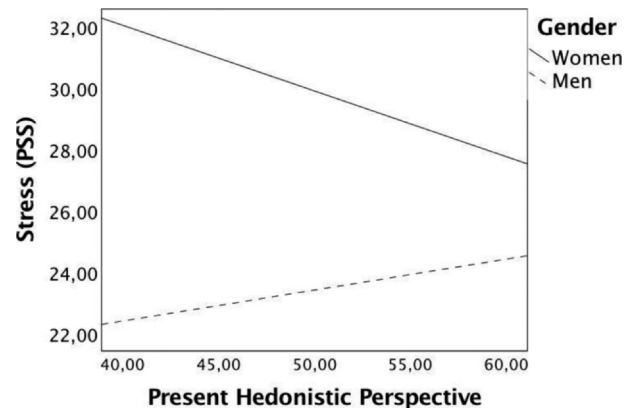


Fig. 2. Relationship between Present Hedonistic perspective and stress in men and women.

We tested for two independent models predicting depression and stress. Both of these variables were strongly related, which is in line with previous studies (see Hammen, 2005). The majority of participants displayed at least mild depressive symptoms (82.6%).

The study was performed during the strict social distancing period in Poland and the risk of distress connected to being apart from other people might have been heightened. A study conducted on a representative sample during COVID lock-down suggested that depressive symptoms were twice as high as before the measure was introduced (Gambin et al., 2020)

In our study, gender moderated the relationship between PH and depressiveness, such that women that scored higher for PH presented with fewer depressive symptoms than women scoring lower on this time perspective. For men, the relationship was inverse—men scoring higher for PH displayed more depressive symptoms than men with lower PH scores. Interestingly, this was observed even though men and women did not differ in their levels of PH. Although a hedonistic view of the present was found to be related to a high positive affect (Desmyter & De Raedt, 2012), other research suggests a significant positive association between PH and depression and anxiety (Davies & Filippopoulos, 2015). Based on these inconsistencies we can assume that in stress, PH might lead to the development of both adaptive or maladaptive forms of coping, especially emotion-focused forms (Blomgren, Svahn, Åström, & Rönnlund, 2016). Our results suggest that the way in which men and women actualize this time perspective may be different. As a consequence, PH-oriented women were able to succeed in the lock-down circumstances, while PH-oriented men were not (Blomgren et al., 2016). Vandello and Cohen (2008) conducted five studies to show that masculinity as opposed to femininity is a much more uncertain and vulnerable state, dependent on constant external stimulation and social acknowledgement in interactions with others. It

is possible that PH-oriented men are likely to meet their hedonistic needs in contact with other people outside of their homes, and lock-down might have been a circumstance that restricted opportunities to maintain such contacts.

PH was also found to be negatively related to stress levels only in women. In men, the relationship between these variables was not significant. One of the crucial stressors during lock-down might have been a fear of viral infection. Women, although generally found to be more concerned about their health than men (Thompson et al., 2016), when high on PH, might have been concentrated on the present and oriented at pleasure so that they found pathways for reducing their stress levels. It should be noted that negative life events, such as an epidemic, may not always result in a decrease in well-being or deterioration in mental health but can lead to effective coping with the adversities and to sustained health (Luhmann & Eid, 2009). Despite inconsistent findings (see Eisenbarth, 2019), some data has shown that men use avoidance (e.g., Sigmon, Stanton, & Snyder, 1995), and drugs or alcohol to cope (e.g., Kieffer et al., 2006) more often than women. Women are more likely than men to seek emotional support across a range of stressors (Tamres, Janicki, & Helgeson, 2002). It is possible that men high on PH are particularly willing to distract themselves from thinking about the danger of viral infection, in contrast to women, who might seek more social contact and support from close-others. However, these are just speculations and further studies are needed to investigate coping strategies during the recent pandemic in both men and women with high PH.

These findings have potentially significant implications for practicing clinicians. Given that time perspectives are based on learning processes, clinicians can utilize them to enhance the development of adaptive time perspectives and balance them—in order to enhance well-being and reduce lock-down related distress.

4.1. Limitations and future directions

Several limitations necessitate a degree of care when interpreting

these findings. The sample consisted mainly of Caucasian participants from a developed country. It is possible that in more embedded cultures, where people live with several generations of relatives in the same household, our result would not be valid. It should also be noted that the forms that displayed depressive symptoms take on can differ between genders (Martin et al., 2013). Including a wider variety of measures of distress might result in a more accurate estimation of depression prevalence, especially in men.

The study was cross-sectional, which makes it impossible to form causality statements about the linkages between variables. Furthermore, it is advisable to continue searching for other indicators of depression and stress during lock-down, such as feelings of loneliness or perceived social support.

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CRediT authorship contribution statement

Marta Bodecka: Conceptualization, Investigation, Resources, Writing - original draft, Writing - review & editing, Project administration, Funding acquisition. **Iwona Nowakowska:** Investigation, Data curation, Writing - original draft, Writing - review & editing, Project administration. **Anna Zajenkovska:** Conceptualization, Methodology, Validation, Investigation, Resources, Writing - original draft, Writing - review & editing, Supervision, Funding acquisition. **Joanna Rajchert:** Formal analysis, Data curation, Writing - original draft, Visualization. **Izabela Kaźmierczak:** Writing - original draft, Writing - review & editing. **Irena Jelonekiewicz:** Writing - original draft, Writing - review & editing.

Appendix A

Table A.1. Cronbach's alpha reliability of all scales and subscales used in the study.

Scale/subscale name	Cronbach's alpha reliability
PHQ	0.86
PSS	0.91
ZTPI past negative	0.86
ZTPI past positive	0.76
ZTPI present fatalistic	0.70
ZTPI present hedonistic	0.77
ZTPI future	0.78

Table A.2. Pearson's correlations between variables, means and standard deviations in the sample and within genders.

	1	2	3	4	5	6	7	8
1. Age	-							
2. Past-Negative time perspective	-0.04	-						
3. Past-Positive time perspective	-0.03	-0.42**	-					
4. Present-Hedonistic time perspective	-0.02	-0.00	0.33**	-				
5. Present-Fatalistic time perspective	0.10	0.41**	-0.02	0.28**	-			
6. Future time perspective	0.07	-0.12	0.01	-0.25**	-0.38*	-		
7. Perceived stress	-0.05	0.47**	-0.36**	-0.15*	0.32**	-0.06	-	
8. Depressive symptoms	-0.13*	0.48**	-0.41**	-0.07	0.31**	-0.12	0.77**	-
M general	30.37	30.32	30.50	49.28	23.34	44.97	27.57	9.99
SD general	10.21	8.24	6.25	8.02	5.46	7.45	8.28	5.85
M women	31.20	31.48	29.41	48.68	23.71	46.30	30.17	11.31
SD women	10.51	8.51	6.54	8.49	5.59	7.57	7.95	5.94

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Table A.2. (continued)

	1	2	3	4	5	6	7	8
M men	29.08	28.48	32.22	50.24	22.76	42.87	23.44	7.89
SD men	9.64	7.49	5.36	7.13	5.23	6.78	7.07	5.07

* $p < 0.05$.** $p < 0.001$.

References

- Anagnostopoulos, F., & Griva, F. (2012). Exploring time perspective in Greek young adults: Validation of the Zimbardo Time Perspective Inventory and relationships with mental health indicators. *Social Indicators Research*, *106*(1), 41–59. <https://doi.org/10.1007/s11205-011-9792-y>.
- Angst, J., Gamma, A., Gastpar, M., Lépine, J. P., Mendlewicz, J., & Tylee, A. (2002). Gender differences in depression. Epidemiological findings from the European DEPRES I and II studies. *European Archives of Psychiatry and Clinical Neuroscience*, *252*(5), 201–209. <https://doi.org/10.1007/s00406-002-0381-6>.
- Blomgren, A. S., Svahn, K., Åström, E., & Rönnlund, M. (2016). Coping strategies in late adolescence: Relationships to parental attachment and time perspective. *The Journal of Genetic Psychology*, *177*(3), 85–96. <https://doi.org/10.1080/00221325.2016.1178101>.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 386–396.
- Davies, S., & Filippopoulos, P. (2015). Changes in psychological time perspective during residential addiction treatment: A mixed-methods study. *Journal of Groups in Addiction & Recovery*, *10*(3), 249–270. <https://doi.org/10.1080/1556035X.2015.1066728>.
- de Quervain, D., Aerni, A., Amini, E., Bentz, D., Coynel, D., Gerhards, C., ... Schlitt, T. (2020). *The Swiss Corona Stress Study* [preprint]. OSF.
- Desmyter, F., & De Raedt, R. (2012). The relationship between time perspective and subjective well-being of older adults. *Psychologica Belgica*, *52*, 19–38. <https://doi.org/10.5334/pb-52-1-19>.
- Disabato, D. J., Kashdan, T. B., Short, J. L., & Jarden, A. (2017). What predicts positive life events that influence the course of depression? A longitudinal examination of gratitude and meaning in life. *Cognitive Therapy and Research*, *41*(3), 444–458. <https://doi.org/10.1007/s10608-016-9785-x>.
- Drake, L., Duncan, E., Sutherland, F., Abernethy, C., & Henry, C. (2008). Time perspective and correlates of wellbeing. *Time & Society*, *17*(1), 47–61. <https://doi.org/10.1177/0961463X07086304>.
- Eagly, A. H., Nater, C., Miller, D. I., Kaufmann, M., & Sczesny, S. (2020). Gender stereotypes have changed: A cross-temporal meta-analysis of U.S. public opinion polls from 1946 to 2018. *American Psychologist*, *75*(3), 301–315. <https://doi.org/10.1037/amp0000494>.
- Eisenbarth, C. A. (2019). Coping with stress: Gender differences among college students. *College Student Journal*, *53*(2), 151–162.
- Essau, C. A., Lewinsohn, P. M., Seeley, J. R., & Sasagawa, S. (2010). Gender differences in the developmental course of depression. *Journal of Affective Disorders*, *127*(1–3), 185–190. <https://doi.org/10.1016/j.jad.2010.05.016>.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. <https://doi.org/10.3758/BF03193146>.
- Gambin, M., Sękowski, M., Woźniak-Prus, M., Wnuk, A., Oleksy, T., Cudo, A., ... Maison, D. (2020). Generalized anxiety and depressive symptoms in various age groups during the COVID-19 lockdown. *Specific predictors and differences in symptoms severity* [preprint]. OSF.
- Girgus, J. S., & Yang, K. (2015). Gender and depression. *Current Opinion in Psychology*, *4*, 53–60. <https://doi.org/10.1016/j.copsy.2015.01.019>.
- Gruber, J., Cunningham, W. A., Kirkland, T., & Hay, A. C. (2012). Feeling stuck in the present? Mania proneness and history associated with present-oriented time perspective. *Emotion*, *12*(1), 13–17. <https://doi.org/10.1037/a0025062>.
- Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology*, *1*, 293–319. <https://doi.org/10.1146/annurev.clinpsy.1.102803.143938>.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Publications.
- Jochemczyk, Ł., Pietrzak, J., Buczkowski, R., Stolarski, M., & Markiewicz, Ł. (2017). You only live once: Present-hedonistic time perspective predicts risk propensity. *Personality and Individual Differences*, *115*, 148–153. <https://doi.org/10.1016/j.paid.2016.03.010>.
- Kieffer, K. M., Cronin, C., & Gawet, D. L. (2006). Test and study worry and emotionality in the prediction of college students' reasons for drinking: An exploratory investigation. *Journal of Alcohol and Drug Education*, *50*, 57–81.
- Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. *Psychiatric Annals*, *32*(9), 509–515. <https://doi.org/10.3928/0048-5713-20020901-06>.
- Leach, L. S., Christensen, H., Mackinnon, A. J., Windsor, T. D., & Butterworth, P. (2008). Gender differences in depression and anxiety across the adult lifespan: The role of psychosocial mediators. *Social Psychiatry and Psychiatric Epidemiology*, *43*(12), 983–998. <https://doi.org/10.1007/s00127-008-0388-z>.
- Li, Z., Ge, J., Yang, M., Feng, J., Qiao, M., Jiang, R., & Yang, C. (2020). Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. *Brain Behavior and Immunity*, *88*, 916–919. <https://doi.org/10.1016/j.bbi.2020.03.007>.
- Luhmann, M., & Eid, M. (2009). Does it really feel the same? Changes in life satisfaction following repeated life events. *Journal of Personality and Social Psychology*, *97*(2), 363–381. <https://doi.org/10.1037/a0015809>.
- Mahase, E. (2020). Covid-19: WHO declares pandemic because of “alarming levels” of spread, severity, and inaction. *BMI*, *368*, m1036. <https://doi.org/10.1136/bmj.m1036>.
- Martin, C. L., & Halverson, C. F., Jr. (1981). A schematic processing model of sex typing and stereotyping in children. *Child Development*, *52*, 1119–1134.
- Martin, L. A., Neighbors, H. W., & Griffith, D. M. (2013). The experience of symptoms of depression in men vs women: Analysis of the National Comorbidity Survey Replication. *JAMA Psychiatry*, *70*(10), 1100–1106. <https://doi.org/10.1001/jamapsychiatry.2013.1985>.
- Mirowsky, J., & Ross, C. E. (2003). *Social causes of psychological distress*. Transaction Publishers.
- Mitchell, H. G., Frayne, D., Wyatt, B., Goller, H., & McCord, D. M. (2019). Comparing the PHQ-9 to the Multidimensional Behavioral Health Screen in predicting depression-related symptomatology in a primary medical care sample. *Journal of Personality Assessment*, *1*–8. <https://doi.org/10.1080/00223891.2019.1693388>.
- Nolen-Hoeksema, S., Larson, J., & Grayson, C. (1999). Explaining the gender difference in depressive symptoms. *Journal of Personality and Social Psychology*, *77*(5), 1061–1072. <https://doi.org/10.1037/0022-3514.77.5.1061>.
- Pérez, E. O., & Tavits, M. (2019). Language influences public attitudes toward gender equality. *The Journal of Politics*, *81*(1), 81–93. <https://doi.org/10.1086/700004>.
- Piccinelli, M., & Wilkinson, G. (2000). Gender differences in depression: Critical review. *The British Journal of Psychiatry*, *177*(6), 486–492. <https://doi.org/10.1192/bjp.177.6.486>.
- Pinkas, J., Jankowski, M., Szumowski, L., Lusawa, A., Zgliczyński, W. S., Raciborski, F., ... Gujski, M. (2020). Public health interventions to mitigate early spread of SARS-COV-2 in Poland. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, *26*, e924730–e924731. <https://doi.org/10.12659/MSM.924730>.
- Salk, R. H., Hyde, J. S., & Abramson, L. Y. (2017). Gender differences in depression in representative national samples: Meta-analyses of diagnoses and symptoms. *Psychological Bulletin*, *143*(8), 783. <https://doi.org/10.1037/bul0000102>.
- Sherman, R. A., Nave, C. S., & Funder, D. C. (2012). Properties of persons and situations related to overall and distinctive personality-behavior congruence. *Journal of Research in Personality*, *46*(1), 87–101. <https://doi.org/10.1016/j.jrp.2011.12.006>.
- Sherrill, J. T., Anderson, B., Frank, E., Reynolds, C. F., III, Tu, X. M., Patterson, D., ... Kupfer, D. J. (1997). Is life stress more likely to provoke depressive episodes in women than in men? *Depression and Anxiety*, *6*(3), 95–105. [https://doi.org/10.1002/\(SICI\)1520-6394\(1997\)6:3<95::AID-DA2>3.0.CO;2-4](https://doi.org/10.1002/(SICI)1520-6394(1997)6:3<95::AID-DA2>3.0.CO;2-4).
- Shigemura, J., & Kurosawa, M. (2020). Mental health impact of the COVID-19 pandemic in Japan. *Psychological Trauma: Theory, Research, Practice and Policy*, *12*(5), 478–479. <https://doi.org/10.1037/tra0000803>.
- Sigmon, S. T., Stanton, A. L., & Snyder, C. R. (1995). Gender differences in coping: A further test of socialization and role constraint theories. *Sex Roles*, *33*, 565–587. <https://doi.org/10.1007/BF01547718>.
- Simpson, R. J., & Katsanis, E. (2020). The immunological case for staying active during the COVID-19 pandemic. *Brain Behavior and Immunity*, *87*, 6–7. <https://doi.org/10.1016/j.bbi.2020.04.041>.
- Snyder, M., & Ickes, W. (1985). Personality and social behavior. In G. Lindzey, & E. Aronson (Vol. Eds.), *Handbook of social psychology* (3rd ed., Vol. 2. *Handbook of social psychology* (pp. 883–947). New York: Random House.
- Stolarski, M., Bitner, J., & Zimbardo, P. G. (2011). Time perspective, emotional intelligence and discounting of delayed awards. *Time & Society*, *20*(3), 346–363. <https://doi.org/10.1177/0961463X11414296>.
- Stolarski, M., Matthews, G., Postek, S., Zimbardo, P. G., & Bitner, J. (2014). How we feel is a matter of time: Relationships between time perspective and mood. *Journal of Happiness Studies*, *15*, 809–827. <https://doi.org/10.1007/s10902-013-9450-y>.
- Szpitalak, M., & Prochwicz, K. (2013). Psychological gender in clinical depression. *Preliminary study*. *Psychiatria Polska*, *47*(1), 53–64.
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, *6*(1), 2–30. https://doi.org/10.1207/S15327957PSPR0601_1.
- Thompson, A. E., Anisimowicz, Y., Miedema, B., Hogg, W., Wodchis, W. P., & Aubrey-Bassler, K. (2016). The influence of gender and other patient characteristics on health care-seeking behaviour: A QUALICOPC study. *BMC Family Practice*, *17*(1), 38. <https://doi.org/10.1186/s12875-016-0440-0>.

- Van de Velde, S., Huijts, T., Bracke, P., & Bamba, C. (2013). Macro-level gender equality and depression in men and women in Europe. *Sociology of Health & Illness*, 35(5), 682–698. <https://doi.org/10.1111/j.1467-9566.2012.01521.x>.
- Vandello, J. A., & Cohen, D. (2008). Culture, gender, and men's intimate partner violence. *Social and Personality Psychology Compass*, 2(2), 652–667. <https://doi.org/10.1111/j.1751-9004.2008.00080.x>.
- Veenhoven, R. (2003). Hedonism and happiness. *Journal of Happiness Studies*, 4(4), 437–457. <https://doi.org/10.1023/B:JOHS.0000005719.56211.fd>.
- Versluis, E., van Asselt, M., & Kim, J. (2019). The multilevel regulation of complex policy problems: Uncertainty and the swine flu pandemic. *European Policy Analysis*, 5(1), 80–98. <https://doi.org/10.1002/epa2.1064>.
- World Medical Association (2001). World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. *Bulletin of the World Health Organization*, 79(4), 373–374.
- Zajenkowski, M., Jonason, P. K., Leniarska, M., & Kozakiewicz, Z. (2020). Who complies with the restrictions to reduce the spread of COVID-19?: Personality and perceptions of the COVID-19 situation. *Personality and Individual Differences*, 166, Article 110199. <https://doi.org/10.1016/j.paid.2020.110199>.
- Zhang, J. W., & Howell, R. T. (2011). Do time perspectives predict unique variance in life satisfaction beyond personality traits? *Personality and Individual Differences*, 50(8), 1261–1266. <https://doi.org/10.1016/j.paid.2011.02.021>.
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid reliable individual differences metric. *Journal of Personality and Social Psychology*, 77, 1271–1288. <https://doi.org/10.1037/0022-3514.77.6.1271>.
- Zimbardo, P. G., & Boyd, J. N. (2008). *The time para-dox*. New York: Free Press.